



2006 Amendment
August 2006

Upper East Coast Water Supply Plan **APPENDICES**

Water Supply Department
South Florida Water Management District

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APPENDIX A
(2006 AMENDMENT)
Demand Assessments and Projections

This document replaces specific sections of Appendix A in the *2004 Upper East Coast Water Supply Plan Update Appendices* (2004 UEC Plan Update Appendices). As part of the *2006 Upper East Coast Water Supply Plan Amendment* (2006 UEC Plan Amendment), this document incorporates significant new information regarding population and water demands that has become available since the adoption of the *2004 Upper East Coast Water Supply Plan Update* (2004 UEC Plan Update).

This plan amendment replaces the following sections of Appendix A of the 2004 UEC Plan Update: Demand Assessments and Projections (pages A-1 through A-4); Categories of Water Use (1 & 2) Public Water Supply (PWS) and Domestic Self-Supply (DSS) demands (pages A-4 through A-10); and, (5) Thermoelectric Power Generation Self-Supply (pages A-19 through A-20). In addition, the concluding sections—Total Annual Water Demand, Comparison with 1998 UEC Projected Water Demand and References Cited (pages A-56 and A-57)—have been changed to reflect the revised information. The tables replaced by this document are **Tables A-1 through A-4, A-35 and A-36**. The reader is referred to the 2004 UEC Plan Update Appendices to review the contents of all other sections of Appendix A.

DEMAND ASSESSMENTS AND PROJECTIONS

Demand assessments for 2000 and projections in five-year increments through 2025 were made for the following water use categories:

1. Public Water Supply (PWS).
2. Domestic Self-Supply (DSS) and Small Public Supply Systems.
3. Commercial/Industrial Self-Supply.
4. Recreational Self-Supply.
5. Thermoelectric Power Generation Self-Supply.
6. Agricultural Self-Supply.

This plan amendment contains revised estimates for the Public Water Supply and Thermoelectric Power Generation Self-Supply uses.

Water demand projections through the Year 2025 included analyses under average (mean) rainfall conditions and under drought conditions. These projections are based on current trends and circumstances. Projections should therefore be understood as surprise free, and imply an extension of current production, market and legal circumstances.

In addition, the projections are unconstrained by supply availability or further demand management (conservation). Therefore, there is the opportunity to reduce these projected demand levels through the policies and activities that would be put in place

based on potential or observed negative natural resource impacts, or in response to actual drought events.

Population is an independent variable for projection purposes, especially for public water supply and domestic self-supply users. Commercial/industrial and recreational self-supply uses are also partially dependent on population. For 2000, the population assessments were based on the Census of Population (U.S. Bureau of the Census 2001). For population projections, the 2004 UEC Plan Update used the medium range county population projections published by the University of Florida, Bureau of Economic and Business Research (BEBR 2002). This plan amendment uses the updated medium-BEBR population projections (BEBR 2006), which show much greater population growth for St. Lucie County, a slightly higher growth for Martin County and slightly lower growth for Okeechobee County than the BEBR projections published in 2002. The newer Year 2025 projections increase St. Lucie County's population by 91,600, Martin County's population by 6,900, and decrease the population located in the portion of Okeechobee County in the Upper East Coast (UEC) Planning Area by 83.

Wherever irrigation requirements are calculated (for agricultural and recreational use), the Agricultural Field Scale Irrigation Requirements Simulation (AFSIRS) Model was used. Irrigation requirements were calculated for average (mean) and 1-in-10 year drought events. Irrigation requirements are equal to the difference between evapotranspiration and effective rainfall. Effective rainfall is equal to the rainfall that is stored in the plant root zone. Changing rainfall levels and timing therefore affect irrigation requirements. However, observed demand levels will vary based on the irrigation managers' perceptions and responses to changing rainfall patterns. Realistically, some may allow plants to experience some level of stress before changing irrigation schedules, while others may habitually over-water at a level that satisfies irrigation demands even during drought events.

For PWS-served and domestic self-supplied demands, the 2000 demand per capita rates were considered to represent the drought level demand rates (per capita), and these demand rates were applied to the relevant projected populations. Projected average demands were reached by subtracting the percentage by which observed demand per capita rates for 2000 exceeded the most recent average rainfall year (1996), as reported by the U.S. Geological Survey (USGS), up to a high of a 6 percent difference.

Average and 1-in-10 Year Rainfall

An average rainfall year is defined as a year with rainfall equal to the mean annual rainfall for the period of record. A 1-in-10 year drought condition is defined as below normal rainfall with a 90 percent probability of being exceeded over a 12-month period. This means there is a 10 percent chance that less than this amount will be received in any given year.

CATEGORIES OF WATER USE

(1 & 2) Public Water Supply and Domestic Self-Supply Demands

Public water supply (PWS) and domestic self-supply (DSS) demand assessments and projections were developed for the South Florida Water Management District (SFWMD or District) for 2000 and in five-year increments through 2025. The domestic self-supplied category includes small public supply systems with projected demands of less than 100,000 gallons per day (GPD), or 0.1 million gallons per day (MGD), in 2025, as well as residents who supply their own water needs. Self-supplied residents may be within or outside of utility boundaries. Water demands were forecasted by multiplying population projections by per capita water use rates. Per capita water use rates were calculated based on 2000 population data from the U.S. Bureau of the Census (2001) and the water pumpage for each utility, as developed by the USGS. The population projections for 2025 for each county were based on the medium range forecasts published by BEBR (BEBR 2006).

The 2000 and projected 2025 utility-served areas used in this analysis were obtained from the utilities. Adjustments were made to account for the known future expansion of the currently served areas. It was assumed that all projected populations within areas being served by a utility would be connected to that PWS system. The breakdown of populations within utility-served areas into PWS-served and domestic self-supplied categories was modified in several instances based on utility input.

Per Capita Rates

Per capita water use rates for 2000 for each utility were calculated by dividing raw water pumped by the permanent resident population served by PWS utilities. The USGS and District pumpage reports provided raw water withdrawal data. The above-mentioned methodology determined total population and the number of individuals served by the utilities.

These per capita rates include total use, incorporating use by seasonal residents and tourists, commercial and industrial utility supplied use, and the losses incurred in water delivery, in addition to the use by permanent residents. Irrigation demand for PWS-served households using private well water for irrigation was not assessed due to the lack of available data.

The Year 2000 was a drought year, which actually exceeded a 1-in-10 year level of recurrence; therefore, per capita rates for 2000 were used to develop the drought utility demand projections. Adjustments were then made to these projections to normalize them for average rainfall conditions. The adjustment factors to calculate drought demands from average demands developed in the 2004 UEC Plan Update are 1.029, 1.034 and 1.064 for St. Lucie, Martin and Okeechobee counties, respectively. These factors are also used in this 2006 UEC Plan Amendment.

Domestic self-supply per capita rates within PWS utility service area boundaries were assumed to be the same as for the utility serving that service area. The per capita rates for the domestic self-supplied users in areas not served by public utilities were assumed to be the weighted average of the PWS per capita rates for the county.

Public Water Supply and Domestic Self-Supply Average and 1-in-10 Year Drought Adjustments

Indoor use categories need no adjustment from the Year 2000 (drought) observed values for an average year, as these categories would have no demand shifts related to drought. Unadjusted base demand for a utility was projected by multiplying a base year per capita rate by a projected population. If desired, the withdrawal distribution (by month) can be derived from historical demand curves for the utility. The difference between the monthly demand for the base year and the unconstrained demand for an average year or a 1-in-10 year will directly depend on the changes in the outdoor use, specifically, changes in demand for landscape irrigation. If the base year is an average year, then there is no need for an adjustment from base to average. However, if the base year is significantly wetter or drier than average, then unconstrained demands for outdoor use will adjust proportionally.

Population Served

2000 Population

In the 2004 UEC Plan Update, U.S. Census data were used as the basis for the 2000 population and the distribution of that population. This 2006 UEC Plan Amendment uses this same information.

Block level information from the census count was used as the basic unit of analysis. Total population, occupied housing units and persons per occupied housing unit were retrieved from census data. In the absence of a self-supplied unit count in the 2000 Census, the self-supplied population within utility-served areas was taken as a constant based on the 1990 Census, which included household water source on its long form.

Estimates of occupied units connected to PWS systems and occupied units that are self-supplied for each block were calculated. It was assumed that the percentages of units occupied and the number of occupants per unit for PWS-connected and domestic self-supplied units were the same. Public water supplied populations and self-supplied populations were calculated by multiplying the number of occupied units by the number of persons per occupied unit for the respective block.

The geographic areas represented by the census blocks and the utility service areas were input as polygon layers into the SFWMD Geographic Information System (GIS). Population density PWS-served and self-supplied areas were calculated for each block, assuming a uniform density within each block. Imagery was used to review decisions when needed. The two layers were overlaid to create a polygon layer with the

attribute data from the two original layers. Population assessments of PWS-served and domestic self-supplied were then calculated for the new polygon layer by multiplying the polygon area by the population density. The populations for each service area were then totaled.

Population Projections

In order to use the 2006 BEBR population information that provides county total populations, while recognizing that the 2004 UEC Plan Update distributed the population based on areas to be served by each utility, a three-step process was applied. First, the projections in the 2004 UEC Plan Update were considered valid and still applicable for population increments up to the total populations projected in the 2004 UEC Plan Update. Second, additional population beyond that in the 2004 UEC Plan Update was distributed to the utilities with significant growth in the 2004 UEC Plan Update based on their share of projected growth. The third step was to interpolate five-year growth by utility, based on each utility's share of projected county growth through 2025 and the share of overall planning period growth expected in each county through the time period in question.

Population Projections in the 2004 Upper East Coast Plan Update

In the 2004 UEC Plan Update, the geographic distribution of the 2025 population was assessed using the ratio of Traffic Analysis Zone (TAZ) population growth for the areas covered by TAZs. The geographic distribution of the 2025 population for areas not covered by TAZs was based on the population distribution in the 2000 Census block data, or was determined from information in the counties' comprehensive plans. Total county population was limited to the county total from the medium-BEBR range projections.

The geographic areas represented by the TAZs and the utility-served areas were input as polygon layers into the SFWMD GIS. Population density was calculated for each TAZ, assuming a uniform density within each zone. The layers were overlaid to create a new polygon layer with the attribute data from the original layers. Population estimates were then recalculated for the new polygon layer by multiplying the area of the polygon by the population density. The populations for each utility-served area were then totaled and limited not to exceed the medium-BEBR range population projection for each county.

Existing and future population within an area being served by a utility was assigned to that utility. This means that within utility-served areas, the domestic self-supplied population was assumed to be zero by 2025, as utilities serve formerly self-supplied residents. Any growth in population within an area not planned to be served by a utility was assigned to the domestic self-supplied category.

Distribution of Additional Population in this Plan Amendment

As stated previously, the updated 2025 population projections add 91,600 to St. Lucie County's projected population and 6,900 to Martin County's projected

population. The population in the portion of Okeechobee County located within the UEC Planning Area is projected to decrease by 83 compared to the estimates in the 2004 UEC Plan Update.

Inspection of the population projections in the 2004 UEC Plan Update revealed that population growth was heavily concentrated in a few utility-served areas in Martin and St. Lucie counties. All population in the Okeechobee County portion of the UEC Planning Area was in the domestic self-supplied category. It was assumed that those utilities that showed little or no growth in the 2004 UEC Plan Update would be unlikely to share significantly in the additional population, which is included in this 2006 UEC Plan Amendment. In Martin County, the utilities receiving a share of the additional 6,900 residents and the percentages received are: Martin County Utilities (68 percent), South Martin Regional (26 percent), Jupiter (5 percent) and Indiantown Water Company (1 percent). In St. Lucie County, the utilities receiving a share of the additional 91,600 residents and the percentages each received are: Port St. Lucie (49 percent), Fort Pierce Utilities Authority (28 percent), St. Lucie West (15 percent), St. Lucie County North (8 percent) and Panther Woods (less than 0.5 percent).

Some additional adjustments were made because of recent or planned acquisitions and service agreements, or due to improved planning data for specific utilities. As a result, in St. Lucie County, additional population was assigned to the City of Port St. Lucie Utility with the population coming from the Reserve and from Spanish Lakes Utilities. This resulted in reductions in populations served by St. Lucie West and in self-supplied populations. In Martin County, adjustments were made to 2000 populations and population growth statistics for City of Stuart, Martin County Utilities and domestic self-supply.

Develop Projections between 2000 and 2025 in Five-Year Increments

This step is needed because projections for the incremental years were not provided in the 2004 UEC Plan Update, and this detail is needed to assess the demands that need to be met by projects identified in this 2006 UEC Plan Amendment for incremental years. The only information readily available to assist in completing this task was the county population projections from BEBR, which were provided in five-year increments. The proportion of growth from 2000 to 2025 for each utility for each five-year increment was estimated using the proportion of county growth for that five-year increment compared to the total county growth from 2000 to 2025. Applying this method gives the population projection results presented in **Table A-1**.

Table A-1. Public Water Supplied and Domestic Self-Supplied Projections of Population Served by Utility.

Utility	2000	2005	2010	2015	2020	2025
St. Lucie County						
Ft. Pierce Utilities Authority	58,612	76,640	92,161	107,278	121,063	133,362
Spanish Lakes Utilities	4,450	2,967	2,967	2,967	2,967	2,967
City of Port St. Lucie	61,228	94,843	126,007	154,099	179,714	202,570
Reserve	952	2,322	0	0	0	0
Harbour Ridge	823	823	823	823	823	823
St. Lucie West Service District	4,025	7,858	11,158	14,373	17,304	19,919
St. Lucie County – North	289	5,294	9,603	13,800	17,627	21,042
Panther Woods	206	380	530	677	810	929
Not in Utility (DSS)	62,110	48,912	37,550	26,483	16,392	7,388
St. Lucie County Total	192,695	240,039	280,800	320,500	356,700	389,000
Martin County						
Martin County Utilities	57,825	68,820	80,515	91,258	101,081	109,752
Miles Grant/Utility Inc.	1,028	1,041	1,055	1,068	1,080	1,090
Pipers Landing	584	584	584	584	584	584
Sailfish Point	372	372	372	372	372	372
City of Stuart	14,633	16,504	18,128	19,782	21,295	22,631
Plantation Utilities/Indian River	648	648	648	648	648	648
Indiantown Water Company	5,252	5,466	5,693	5,902	6,093	6,262
South Martin Regional Utility	14,699	19,534	24,678	29,403	33,723	37,536
Village of Tequesta	2,496	2,542	2,591	2,636	2,677	2,713
Town of Jupiter	594	1,571	2,610	3,564	4,436	5,207
Not in Utility (DSS)	28,600	23,977	19,426	15,083	11,111	7,605
Martin County Total	126,731	141,059	156,300	170,300	183,100	194,400
Eastern Okeechobee County						
Not in Utility (DSS)	1,238	1,302	1,362	1,420	1,476	1,527
Okeechobee County Total	1,238	1,302	1,362	1,420	1,476	1,527
UEC Planning Area Total	320,664	382,400	438,462	492,220	541,276	584,927

For water utilities, a major focus of this 2006 UEC Plan Amendment is assuring that projects identified in the plan amendment are adequate to meet demands. The demands in this instance refer to the demands of the utility customers, including permanent residents, seasonal residents, tourists, commercial, government and industrial users. The customer demands also include users who may not be metered. The best available measure for estimating customer demands as applied to public water suppliers is finished (treated) water leaving the treatment plants. While utility finished water production includes unaccounted for water, as well as water whose use is eventually metered, the finished water production is still a good measure of utility customer

demands. This is because a significant portion of the unaccounted for water is used but simply unmetered, while the remainder—though not ultimately used by customers—is limited for use through the consumptive use permitting (CUP) process. Utilities are meeting the desired efficiency of delivery standards; therefore, the loss of water is not expected to change over time as a proportion of finished water demands that are met.

The water resource demands reflect existing sources, treatment methods and capacities, and those identified by projects in **Section 3** of the 2006 UEC Plan Amendment. In some cases, the finished water demands met by each utility are not significantly different than the raw water withdrawals, but the differences are becoming more important, and these differences are arising primarily from the decisions made regarding source and treatment methods. The finished water demands of any utility's customers do not directly include water used in treatment processes, the effects of aquifer storage and recovery (ASR) systems or bulk sales, and purchases of finished water between utilities.

For instance, in the UEC Planning Area, a large percentage of new utility demands are being met using brackish water sources, and withdrawals from these sources are about one-third higher than those from freshwater sources using conventional treatment processes. This is due to the water treatment process at reverse osmosis (RO) plants that yields both potable water (about 75 percent of water entering the plant) and a concentrate containing the salts (about 25 percent of water entering the plant).

Accordingly, this 2006 UEC Plan Amendment presents information on finished water demands and water resource (raw water) demands for both average conditions and 1-in-10 year drought conditions. This information is presented for St. Lucie County in **Table A-2**, for Martin County in **Table A-3**, and for Okeechobee County in **Table A-4**.

Table A-2. Public Water Supplied and Domestic Self-Supplied Demand Projections
for St. Lucie County.

Finished Water Demand Average Conditions	2000	2005	2010	2015	2020	2025
Ft. Pierce Utilities Authority	8.7	11.3	13.6	15.8	17.9	19.7
Spanish Lakes Utilities	0.8	0.5	0.5	0.5	0.5	0.5
City of Port St. Lucie	6.5	10.1	13.4	16.4	19.1	21.6
Reserve	0.1	0.2	0.0	0.0	0.0	0.0
Harbour Ridge	0.1	0.1	0.1	0.1	0.1	0.1
St. Lucie West Service District	0.7	1.4	2.0	2.6	3.1	3.6
St. Lucie County – North	0.1	0.8	1.4	2.0	2.6	3.1
Panther Woods	0.1	0.2	0.2	0.3	0.3	0.4
Not in Utility (DSS)	8.2	6.5	5.0	3.5	2.2	1.0
Total	25.3	31.2	36.3	41.4	45.9	50.0
Finished Water Demand 1-in-10 Year Conditions	2000	2005	2010	2015	2020	2025
Ft. Pierce Utilities Authority	8.9	11.6	14.0	16.3	18.4	20.3
Spanish Lakes Utilities	0.8	0.5	0.5	0.5	0.5	0.5
City of Port St. Lucie	6.7	10.4	13.8	16.9	19.7	22.2
Reserve	0.1	0.2	0.0	0.0	0.0	0.0
Harbour Ridge	0.1	0.1	0.1	0.1	0.1	0.1
St. Lucie West Service District	0.7	1.5	2.1	2.7	3.2	3.7
St. Lucie County – North	0.1	0.8	1.5	2.1	2.7	3.2
Panther Woods	0.1	0.2	0.2	0.3	0.4	0.4
Not in Utility (DSS)	8.4	6.7	5.1	3.6	2.2	1.0
Total	26.0	32.1	37.4	42.5	47.2	51.4
Raw Water Demand Average Conditions	2000	2005	2010	2015	2020	2025
Ft. Pierce Utilities Authority	8.7	11.4	16.2	19.6	22.2	24.6
Spanish Lakes Utilities	0.8	0.5	0.5	0.5	0.5	0.5
City of Port St. Lucie	6.5	12.4	17.2	21.1	24.5	27.6
Reserve	0.1	0.2	0.0	0.0	0.0	0.0
Harbour Ridge	0.1	0.1	0.1	0.1	0.1	0.1
St. Lucie West Service District	0.7	1.9	2.7	3.5	4.2	4.8
St. Lucie County – North	0.1	0.8	1.4	2.3	3.1	3.7
Panther Woods	0.1	0.2	0.2	0.3	0.3	0.4
Not in Utility (DSS)	8.2	6.5	5.0	3.5	2.2	1.0
Total	25.3	34.0	43.4	50.9	57.1	62.7
Raw Water Demand 1-in-10 Year Conditions	2000	2005	2010	2015	2020	2025
Ft. Pierce Utilities Authority	8.9	11.8	16.7	20.2	22.9	25.3
Spanish Lakes Utilities	0.8	0.5	0.5	0.5	0.5	0.5
City of Port St. Lucie	6.7	12.7	17.7	21.7	25.3	28.4
Reserve	0.1	0.2	0.0	0.0	0.0	0.0
Harbour Ridge	0.1	0.1	0.1	0.1	0.1	0.1
St. Lucie West Service District	0.7	1.9	2.8	3.6	4.3	4.9
St. Lucie County – North	0.1	0.8	1.5	2.3	3.2	3.8
Panther Woods	0.1	0.2	0.2	0.3	0.4	0.4
Not in Utility (DSS)	8.4	6.7	5.1	3.6	2.2	1.0
Total	26.0	35.0	44.6	52.3	58.9	64.4

Table A-3. Public Water Supplied and Domestic Self-Supplied Demand Projections
for Martin County.

Finished Water Demand Average Conditions	2000	2005	2010	2015	2020	2025
Martin County Utilities	8.0	9.6	11.2	12.7	14.0	15.2
Miles Grant/Utility Inc.	0.1	0.1	0.1	0.2	0.2	0.2
Pipers Landing	0.1	0.1	0.1	0.1	0.1	0.1
Sailfish Point	0.2	0.2	0.2	0.2	0.2	0.2
City of Stuart	3.5	4.0	4.4	4.8	5.1	5.5
Plantation Util./Indian River	0.2	0.2	0.2	0.2	0.2	0.2
Indiantown Water Company	0.7	0.7	0.8	0.8	0.8	0.9
South Martin Regional Utility	3.8	5.1	6.4	7.6	8.7	9.7
Village of Tequesta	0.7	0.7	0.7	0.7	0.7	0.8
Town of Jupiter	0.2	0.5	0.8	1.1	1.4	1.6
Not in Utility (DSS)	5.9	4.9	4.0	3.1	2.3	1.6
Total	23.5	26.1	28.9	31.5	33.8	35.9
Finished Water Demand 1-in-10 Year Conditions	2000	2005	2010	2015	2020	2025
Martin County Utilities	8.3	9.9	11.6	13.1	14.5	15.8
Miles Grant/Utility Inc.	0.2	0.2	0.2	0.2	0.2	0.2
Pipers Landing	0.2	0.2	0.2	0.2	0.2	0.2
Sailfish Point	0.2	0.2	0.2	0.2	0.2	0.2
City of Stuart	3.7	4.1	4.5	4.9	5.3	5.6
Plantation Util./Indian River	0.2	0.2	0.2	0.2	0.2	0.2
Indiantown Water Company	0.7	0.8	0.8	0.8	0.9	0.9
South Martin Regional Utility	3.9	5.2	6.6	7.9	9.0	10.1
Village of Tequesta	0.7	0.7	0.8	0.8	0.8	0.8
Town of Jupiter	0.2	0.5	0.9	1.2	1.5	1.7
Not in Utility (DSS)	6.1	5.1	4.1	3.2	2.4	1.6
Total	24.3	27.1	29.9	32.6	35.0	37.2
Raw Water Demand Average Conditions	2000	2005	2010	2015	2020	2025
Martin County Utilities	8.4	10.9	13.8	15.6	17.3	18.8
Miles Grant/Utility Inc.	0.1	0.1	0.1	0.2	0.2	0.2
Pipers Landing	0.1	0.1	0.1	0.1	0.1	0.1
Sailfish Point	0.3	0.3	0.3	0.3	0.3	0.3
City of Stuart	3.5	4.0	4.4	5.1	5.5	6.0
Plantation Util./Indian River	0.2	0.2	0.2	0.2	0.2	0.2
Indiantown Water Company	0.7	0.7	0.8	0.8	0.8	0.9
South Martin Regional Utility	4.1	5.5	7.1	8.7	10.0	11.1
Village of Tequesta	0.7	0.7	0.7	0.7	0.7	0.8
Town of Jupiter	0.2	0.6	0.9	1.2	1.6	1.8
Not in Utility (DSS)	5.9	4.9	4.0	3.1	2.3	1.6
Total	24.3	28.1	32.5	36.1	39.0	41.7

Table A-3. Public Water Supplied and Domestic Self-Supplied Demand Projections for Martin County (Continued).

Raw Water Demand 1-in-10 Year Conditions	2000	2005	2010	2015	2020	2025
Martin County Utilities	8.7	11.3	14.3	16.2	17.9	19.4
Miles Grant/Utility Inc.	0.2	0.2	0.2	0.2	0.2	0.2
Pipers Landing	0.2	0.2	0.2	0.2	0.2	0.2
Sailfish Point	0.3	0.3	0.3	0.3	0.3	0.3
City of Stuart	3.7	4.1	4.5	5.2	5.7	6.2
Plantation Util./Indian River	0.2	0.2	0.2	0.2	0.2	0.2
Indiantown Water Company	0.7	0.8	0.8	0.8	0.9	0.9
South Martin Regional Utility	4.3	5.7	7.4	9.0	10.3	11.5
Village of Tequesta	0.7	0.7	0.8	0.8	0.8	0.8
Town of Jupiter	0.2	0.6	1.0	1.3	1.6	1.9
Not in Utility (DSS)	6.1	5.1	4.1	3.2	2.4	1.6
Total	25.2	29.1	33.6	37.4	40.4	43.2

Table A-4. Public Water Supplied and Domestic Self-Supplied Demand Projections for Okeechobee County.

Finished Water Demand Average Conditions	2000	2005	2010	2015	2020	2025
Not in Utility (DSS)	0.1	0.1	0.1	0.1	0.2	0.2
Total	0.1	0.1	0.1	0.1	0.2	0.2
Finished Water Demands Under 1-in-10 Conditions	2000	2005	2010	2015	2020	2025
Not in Utility (DSS)	0.1	0.1	0.2	0.2	0.2	0.2
Total	0.1	0.1	0.2	0.2	0.2	0.2
Raw Water Demands Under Average Conditions	2000	2005	2010	2015	2020	2025
Not in Utility (DSS)	0.1	0.1	0.1	0.1	0.2	0.2
Total	0.1	0.1	0.1	0.1	0.2	0.2
Raw Water Demands Under 1-in-10 Conditions	2000	2005	2010	2015	2020	2025
Not in Utility (DSS)	0.1	0.1	0.2	0.2	0.2	0.2
Total	0.1	0.1	0.2	0.2	0.2	0.2

(5) Thermoelectric Power Generation Self-Supply

Thermoelectric power plants may withdraw large quantities of water for cooling purposes. The vast majority of this water is not consumed in the sense that the same water may pass through the plant repeatedly, sequentially circulating through a series of ponds. There will normally be some process and evaporative losses that must be replaced from an external source beyond rainfall and runoff. Replacement water demand was assessed for 2000 use and projected for 2025. Electric utilities were contacted with regard to anticipated increased water needs for cooling purposes. It is noted that there are significant uncertainties associated with potential deregulation of the industry; therefore, projections of this water use category may be subject to significant change in subsequent water supply plans.

Two utilities in the UEC Planning Area are presently using fresh water for cooling purposes, the Florida Power & Light (FPL) Martin County Plant and the Indiantown Cogeneration Plant. The Indiantown Cogeneration Plant uses the Taylor Creek/Nubbin Slough as its source, which is located in the Kissimmee Basin Planning Area. Therefore, the Indiantown plant's demands will be addressed in the *2005–2006 Kissimmee Basin Water Supply Plan Update*.

The FPL Martin County Plant withdraws a significant quantity of water from the Martin County Reservoir for cooling purposes. Most of this water is needed to maintain the reservoir impoundment, with calculated losses of 9.8 MGD to evaporation in 2000, based on information received from FPL. In 2005, Florida Power & Light completed an expansion of the existing Martin County Plant. In addition to this plant expansion, FPL has identified a need for two additional power plants that will be located in the UEC Planning Area. As site development moves forward, site-specific projects will be identified by FPL. All of the FPL power plants will use cooling towers as the heat rejection method. As a result, these additional power plants are projected to require 35 MGD of water in 2025. The primary water sources for these plants will be alternative water supplies, such as the Floridan Aquifer, captured excess stormwater and reuse water.

In addition, the City of Fort Pierce is developing a new power plant, the Treasure Coast Energy Center, which is expected to use 3 MGD of a reclaimed water source. As a result of these additional plants, total Thermoelectric Power Generation water use in the UEC Planning Area is expected to grow from 9.8 in 2000 to 47.6 MGD in 2025.

Total Annual Water Demand

Estimated and projected demands for the UEC Planning Area by major use category are shown in **Table A-35**. The information shows the 2000 historical demands, which are the same for the 2004 UEC Plan Update and for this plan amendment. However, in this plan amendment, the domestic self-supplied water use for 2000 is slightly lower because updated information indicated that a higher portion of the 2000

population was served by utilities than had been previously estimated. The table also presents projected demands for this 2006 UEC Plan Amendment.

Table A-35. Overall Water Demands for 2000 and 2025 (MGD).

Category	Estimated Historical Demands 2000 (MGD)	Projected Demands 2025 (MGD)	Percent Change 2000- 2025	Percent of Total 2000	Percent of Total 2025
Public Water Supply	36.5	101.9	179.2%	13%	27%
Domestic Self-Supply	14.6	2.7	-81.5%	5%	1%
Commercial & Industrial Self-Supply	3.3	4.9	48.5%	1%	1%
Recreational Self-Supply	12.8	23.8	85.9%	4%	6%
Thermoelectric Power Generation Self-Supply	9.8	47.6	385.7%	3%	13%
Agricultural Self-Supply	212.8	197.1	-7.4%	74%	52%
Total	289.8	378.0	30.4%	100%	100%

Comparison with 1998 Upper East Coast Plan Projected Water Demand

Table A-36 shows the average projected demands in the *1998 Upper East Coast Water Supply Plan*, the 2004 UEC Plan Update and this 2006 UEC Plan Amendment. The significant changes in population and water demands as discussed in this plan amendment can be seen in the last column of the table.

Table A-36. Average Projected Withdrawal Demands in the 1998 UEC Water Supply Plan, the 2004 UEC Plan Update and the 2006 UEC Plan Amendment.

Category	1998 UEC Plan for 2020	2004 UEC Plan Update for 2025	2006 UEC Plan Amendment for 2025	Percent Change 2006 Amendment (2025) vs. 1998 UEC Plan (2020)	Percent Change 2006 Amendment (2025) vs. 2004 UEC Plan Update (2025)
Population	445,925	485,510	584,927	31%	20%
Water Use (MGD)	565.4	337.3	378.0	-33%	12%
Public Water Supply (MGD)	64.4	77.8	101.9	58%	31%
Domestic Self-Supply and Small Public Supply Systems (MGD)	18.8	3.7	2.7	-86%	-27%
Commercial & Industrial Self-Supply (MGD)	4.3	4.9	4.9	14%	0%
Recreational Self-Supply (MGD)	38.1	23.8	23.8	-38%	0%
Thermoelectric Power Generation Self-Supply (MGD)	Not Addressed	30	47.6	N.A.	59%
Agricultural Self-Supply (MGD)	439.8	197.1	197.1	-55%	0%

The most significant differences between the 2004 UEC Plan Update demand estimates and the demands estimated in this 2006 UEC Plan Amendment occur for the following reasons:

- Population projections for the 2006 UEC Plan Amendment show much larger growth than projections in the 2004 UEC Plan Update. This has a large effect on Public Water Supply.
- In the Thermoelectric Power Generation category, the 2004 UEC Plan Update identified two existing thermoelectric power plants that use fresh water for cooling purposes and estimated demands growing to 30 MGD in 2025. This plan amendment projects two additional FPL power generation facilities and one municipal facility, which all together increase expected 2025 demands for this region.
- Domestic Self-Supply demands for 2025 decline relative to those in the 2004 UEC Plan Update due to an increased portion of the population supplied by local utilities.

REFERENCES CITED

- Bureau of Economic and Business Research. 2002. *Projections of Florida Population by County 2002–2030*. Bulletin 132 BEBR, University of Florida, Gainesville, FL.
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- United States Bureau of Census. 2001. *Florida 2000 Census of Population and Housing*. U.S. Department of Commerce, Washington, D.C. Available from:
<http://www.census.org>.

APPENDIX F

Water Supply Development Projects

Table 1. 2006–2025 Upper East Coast Planning Area Water Supply Development Projects.

	Utility/Entity	Project	Water Source	Design Capacity (MGD)	Year Water is First Produced	Total Est. Capital Costs (\$M)	Annual O&M Costs (\$M)	Eligible for AWS Funding?
Martin	Highlands Reserve, DRH	Highlands Reserve On-site Reuse Irrigation System Distribution Piping and Pump Station	Reclaimed	0.00	2007	1.60	0.00	Y
Martin	Indiantown Company	Indiantown Reclaimed Water Main	Reclaimed	2.52	2007	1.42	0.08	Y
Martin	Indiantown Company	Indiantown Reclaimed Water Main	Reclaimed	0.24	2008	0.11	0.02	Y
Martin	Indiantown Company	Indiantown Reclaimed Water Main	Reclaimed	0.20	2009	0.15	0.03	Y
Martin	Indiantown Company	Indiantown Reclaimed Water Main	Reclaimed	0.83	2010	0.39	0.08	Y
Martin	Indiantown Company	Indiantown Wastewater Treatment Plant Upgrades	Reclaimed	1.50	2007	2.94	1.23	Y
Martin	Martin County USWD	North Water Treatment Plant New Floridan Well NRO-5	Brackish	2.25	2008	1.10	0.82	Y
Martin	Martin County USWD	Tropical Farms Water Treatment Plant Expansion for Build-out	Brackish	4.00	2007	7.13	2.38	Y
Martin	Martin County USWD	Completion Tropical Farms Reverse Osmosis Plant Trains A,B,D	Brackish	6.00	2007	2.90	0.00	Y
Martin	Martin County USWD	North System Wastewater Treatment Plant Expansion with Facilities to Treat WW to Reclaimed Standards	Reclaimed	1.20	2011	6.00	3.00	Y
Martin	Martin County USWD	6" Reuse Main from North System WWTP to Green River	Reclaimed	0.10	N/A	0.19	0.00	Y

Table 1. 2006–2025 Upper East Coast Planning Area Water Supply Development Projects (Continued).

	Utility/Entity	Project	Water Source	Design Capacity (MGD)	Year Water is First Produced	Total Est. Capital Costs (\$M)	Annual O&M Costs (\$M)	Eligible for AWS Funding?
Martin	Martin County USWD	Willoughby Reuse Tank and Repump	Reclaimed	2.00	2008	1.80	1.10	Y
Martin	Martin County USWD	Renovation of Dixie Park Treatment Units for Reuse	Reclaimed	1.50	2007	0.39	0.83	Y
Martin	Martin County USWD	16" Reuse Main from Tropical Farms WWTP to Cove Road	Reclaimed	1.50	2008	1.03	0.00	Y
Martin	Martin County USWD	16" Reuse Main from Armellini Ave to SW Golden Bear	Reclaimed	1.50	2011	2.82	0.00	Y
Martin	Martin County USWD	Tropical Farms Reclaimed Water Facility Reuse Storage Tank	Reclaimed	2.00	2009	2.30	0.00	Y
Martin	Martin County USWD	MCU Tropical Farms Reclaimed Water Facilities Phase 2	Reclaimed	2.50	2009	1.50	0.00	Y
Martin	Martin County USWD	6" Reuse Water Main from Tropical Farms WWTP to Florida Club Lake # 1	Reclaimed	0.20	2007	0.10	0.00	Y
Martin	Martin County USWD	12" Reuse Water Main from MCU North WWTP to Pinecrest	Reclaimed	0.50	2010	1.54	0.00	Y
Martin	Martin County USWD	Conversion of Vista Salerno WTP to Reuse Storage and Pumping Facility	Reclaimed	1.00	2007	1.08	0.00	Y
Martin	Martin County USWD	16" Reuse Water Main Along Sand Trail (Formerly Martin Downs WWTP Reuse Pump Station Modifications and Pipe)	Reclaimed	1.50	2007	0.47	0.00	Y
Martin	Martin County USWD	Vista Salerno Supplemental Reuse Water Pump Station and Main	Reclaimed	0.29	2006	0.68	0.03	Y

Table 1. 2006–2025 Upper East Coast Planning Area Water Supply Development Projects (Continued).

	Utility/Entity	Project	Water Source	Design Capacity (MGD)	Year Water is First Produced	Total Est. Capital Costs (\$M)	Annual O&M Costs (\$M)	Eligible for AWS Funding?
Martin	Martin County USWD	MCU Tropical Farms Reclaimed Water Facilities Phase 1	Reclaimed	3.75	2007	11.30	7.53	Y
Martin	Martin County USWD	Highlands Reserve Irrigation Reuse Water Main	Reclaimed	0.37	2007	3.04	0.00	Y
Martin	Martin County USWD	2006 Project Martin County Tropical Farms 2 MGD RO Expansion (Train D)	Brackish	0.00	2006	1.61	0.00	Y
Martin	Martin County USWD	2006 Project Martin County Tropical Farms 4 MGD RO WTP Expansion (Train A&B)	Brackish	0.00	2006	9.34	0.00	Y
Martin	Martin County USWD	2006 Project Martin County Tropical Farms - 1.2 MGD Reclaimed Water Treatment Expansion	Reclaimed	1.20	2006	0.53	0.00	Y
Martin	Martin County USWD	2006 Project Martin County North - 3.75 MGD Reclaimed Water Treatment Expansion	Reclaimed	3.75	2006	1.34	0.00	Y
Martin	SMRU	Reverse Osmosis Water Plant Expansion	Brackish	2.20	2011	3.50	5.50	Y
Martin	SMRU	Irrigation Water Supply Pumping Stations and Storage	Reclaimed	1.50	2007	1.90	5.50	Y
Martin	SMRU	Supplemental Irrigation Water Sources	Traditional	0.50	2009	1.50	0.28	N

Table 1. 2006–2025 Upper East Coast Planning Area Water Supply Development Projects (Continued).

	Utility/Entity	Project	Water Source	Design Capacity (MGD)	Year Water is First Produced	Total Est. Capital Costs (\$M)	Annual O&M Costs (\$M)	Eligible for AWS Funding?
Martin	SMRU	2006 Project SMRU Irrigation Quality Water Improvement Program	Reclaimed	1.39	2006	0.55	0.00	Y
Martin	Stuart	Construction of ASR or Blending Well	Brackish	1.6	2011	2.30	0.00	Y
Martin	Stuart	Reclaimed Water System with Plant Modifications, including Piping, Filter Pumps and Filtration Unit	Reclaimed	1.37	2008	2.65	0.00	Y
Martin	Stuart	2006 Project Reclaimed System Phase 2	Reclaimed	1.33	2006	1.80	0.00	Y
St. Lucie	Fort Pierce UA	RO Plant Expansion Phase 3 RO Concentrate Deep Injection Well	Brackish	7.00	2008	4.50	0.20	Y
St. Lucie	Fort Pierce UA	Deepen 3 Existing Floridan Wells from 900' to 1,250'	Brackish	4.00	2007	0.57	0.00	Y
St. Lucie	Fort Pierce UA	New Floridan Aquifer Wells	Brackish	4.00	2010	1.40	0.05	Y
St. Lucie	Fort Pierce UA	Phase 4 Expansion of RO Plant	Brackish	8.00	2011	18.00	15.00	Y
St. Lucie	Fort Pierce UA	FPUA/St. Lucie County Joint Regional RO Plant	Brackish	6.00	2016	25.00	12.50	Y
St. Lucie	Fort Pierce UA	Mainland Water Reclamation Facility – Phase 1 Reclaimed Facility	Reclaimed	3.00	2009	10.12	0.60	Y
St. Lucie	Fort Pierce UA	Mainland Water Reclamation Facility – Phase 2 Reclaimed Facility	Reclaimed	3.00	2011	1.92	0.60	Y
St. Lucie	Fort Pierce UA	Mainland Water Reclamation Facility – Phases 3-5 Reclaimed Facility	Reclaimed	11.00	2016	14.65	1.80	Y

Table 1. 2006–2025 Upper East Coast Planning Area Water Supply Development Projects (Continued).

	Utility/Entity	Project	Water Source	Design Capacity (MGD)	Year Water is First Produced	Total Est. Capital Costs (\$M)	Annual O&M Costs (\$M)	Eligible for AWS Funding?
St. Lucie	Fort Pierce UA	South Jenkins Road Reclaimed Water Main	Reclaimed	3.00	2009	2.10	0.11	Y
St. Lucie	Fort Pierce UA	North Jenkins Road Reclaimed Water Main	Reclaimed	2.00	2011	0.72	0.04	Y
St. Lucie	Fort Pierce UA	Orange Avenue Reclaimed Water Main	Reclaimed	2.00	2011	0.88	0.04	Y
St. Lucie	Fort Pierce UA	Angle Road Reclaimed Water Main	Reclaimed	1.00	2011	0.83	0.04	Y
St. Lucie	Fort Pierce UA	2006 Project 3.2 MGD RO Expansion	Brackish	3.20	2006	2.80	0.00	Y
St. Lucie	Port St. Lucie	JEA WTP Expansion of Facility's RO Treatment Capacity	Brackish	11.50	2007	20.90	0.16	Y
St. Lucie	Port St. Lucie	JEA WTP Expansion New Florida Wells	Brackish	5.00	2007	21.39	0.00	Y
St. Lucie	Port St. Lucie	Glades Wastewater Treatment Facility Reclaimed Water Facilities	Reclaimed	20.30	2007	15.50	0.31	Y
St. Lucie	Port St. Lucie	Westport-Southport Service Area Interconnection	Reclaimed	9.00	2007	3.10	0.01	Y
St. Lucie	Port St. Lucie	2006 Project Glades Reclaimed System Phases 1&2	Reclaimed	0.00	2006	6.50	0.00	Y
St. Lucie	St. Lucie County Utilities	North Hutchinson Island Wastewater Treatment Plant	Reclaimed	0.75	2008	5.95	1.00	Y
St. Lucie	St. Lucie County Utilities*	North – Floridan Well(s)	Brackish	1.10	2015	1.00	0.02	Y
St. Lucie	St. Lucie West Services District	Floridan Well Expansion (surplus capacity exists)	Brackish	0.20	2025	0.00	0.00	Y

* District-recommended project.

APPENDIX G

Information for Local Government Comprehensive Plans

The water supply plan updates contain a variety of water supply-related information useful to local governments in the preparation and amendment of their comprehensive plans. Much of that information is contained within other appendices or sections of this *2006 Upper East Coast Water Supply Plan Amendment* (2006 UEC Plan Amendment) and can be found in the following locations:

Water Sources	Section 3, 2004 Plan Update Chapter 5 and Appendix F
Utility Areas Served (2005 & 2025)	Appendix G
Population Projections (2005–2025)	Section 2 and Amended Appendix A
Demand Projections (2005–2025)	Section 2 and Amended Appendix A
Water Supply Projects (2005–2025)	Appendix F

Other information useful for comprehensive plans is provided in this appendix:

1. The South Florida Water Management District's (SFWMD or District) checklist of needed comprehensive plan data.
 - a. Cited statutory provisions.
2. Tables showing which utilities serve which jurisdiction.
3. Maps of utility areas currently served (2005) and to-be-served (2025).

1. CHECKLIST OF NEEDED COMPREHENSIVE PLAN DATA

This section provides a general checklist of the type of data and information that the SFWMD will be looking for to review water supply issues in local government comprehensive plans. This listing is not all-inclusive, but provides a broad, general framework that should be used in combination with the more detailed, related guidelines developed by the Florida Department of Community Affairs (FDCA), and case-by-case comments made by the SFWMD on specific water supply issues.

Checklist guidance is given for three water supply aspects of comprehensive plans:

- A. Plan Amendments (Future Land Use Change).
- B. 10-Year Water Supply Facilities Work Plan and potable water amendments related to recent Subsection 163.3177(6)(c), Florida Statutes (F.S.), statutory changes.
- C. Evaluation & Appraisal Report (EAR) reporting requirements.

A. Plan Amendments (Future Land Use Change)

Water Supply Demand Projections

- ☐ Address both raw and finished (i.e., after any losses due to water treatment) water supply needs for both potable and nonpotable (i.e., irrigation) demands, using professionally acceptable methodologies.
- ☐ Address existing and future conservation and reuse commitments, and levels of service, for both the proposed future land use change and the comprehensive plan.
- ☐ Address both the build-out time frame for a proposed future land use change and the established planning time frame for the comprehensive plan.

Water Source Identification

- ☐ For existing demands, reflect water source(s) from supplier's consumptive use permit (CUP).
- ☐ For future demands covered by a supplier's commitment to provide service under remaining available capacity of an existing consumptive use permit, reflect the water source(s) from the supplier's CUP.
- ☐ For future demands not covered by an existing CUP, provide sufficient planning level data and analysis to demonstrate the availability of a sustainable water source as identified in the appropriate District regional water supply plan.

Availability of Water Supply and Public Facilities

- ☐ Demonstrate that there is an availability of raw water supply from the proposed source(s) of raw supply for the future land use change, given all other approved land use commitments within the local government's jurisdiction over both the proposed amendment's build-out, and the established planning period of the comprehensive plan. (See Section 163.3167(13), F.S., and Subsection 163.3177(6)(a), F.S.)
- ☐ Demonstrate that there is an availability of both treatment facility capacity and permitted, available finished water supply for the future land use change, given all other commitments for that capacity and supply over the proposed amendment's build-out time frame.
- ☐ If the availability of either water supply and/or public facilities is not currently demonstrable, this will require either phasing of the future land use (see Subsection 163.3177(10)(h), F.S.), and/or appropriate amendments to the Capital Improvements Element, or to the Potable Water Sub-Element, to ensure the necessary capital planning and timely availability of the needed infrastructure and water supply. (See Subsections 163.3177(3)(a) and (6)(c), F.S.)

Related Comprehensive Plan Amendments

- ☐ Addressing a future land use change may also require amendments to other specific elements within the comprehensive plan if it requires an adjustment to either the plan's future population or demand projections; the comprehensive plan's established planning period; or, the water supply sources required to be addressed in the comprehensive plan. (See Section 163.3167(13), F.S., and Subsections 163.3177(5)(a), 163.3177(6)(a), 163.3177(6)(c), and 163.3177(6)(d), F.S.)

B. 10-Year Water Supply Facilities Work Plan and Other Potable Water Sub-Element Revisions

(Within 18 months following this 2006 UEC Plan Amendment)

Water Supply Demand Projections

- ☐ Coordinate with the regional water supply plan's demand projections. Address both raw and finished (i.e., after any losses due to water treatment) water supply needs for both potable and nonpotable (i.e., irrigation) demands within the jurisdiction (regardless of supplier) for at least five-year intervals out to the established planning time frame of the comprehensive plan.
- ☐ Address existing and future conservation and reuse commitments and levels of service for the established planning time frame of the comprehensive plan.
- ☐ Identify existing and future utility service areas (i.e., areas to be actually served) for each provider within the jurisdiction.
- ☐ Identify areas and amounts of any self-supply (i.e., supply by single-family individual wells) separately.

Water Source Identification

- ☐ Address the water supply sources necessary to meet and achieve the existing and projected water use demand for the established planning period, considering the regional water supply plan.

Water Supply Project Identification and Selection

- ☐ Identify sufficient conservation, reuse, alternative water supply projects and traditional water supply projects necessary to meet projected demands.
- ☐ Select and incorporate into the comprehensive plan alternative water supply project(s) selected by the local government from those identified in the regional water supply plan, or propose alternatives.
- ☐ Based upon projected demands, include a water supply facilities work plan, covering at least a 10-year planning period, but preferably out to the established planning period, for building all public, private and regional water supply facilities that will provide water supply service within the local government's jurisdiction (e.g., if it is a water provider to land uses within the jurisdiction, its facility planning must be addressed in the work plan).
- ☐ Appropriate amendments to the Capital Improvements Element may be required. (See Subsection 163.3177(3)(a), F.S.).

C. Evaluation & Appraisal Report (EAR)

Subsection 163.3191(2)(L), F.S.

(Submitted after the adoption of a 10-Year Water Supply Facilities Work Plan)

Water Supply Project Identification and Selection

- ☐ Identify the extent to which the local government has been successful in identifying alternative water supply projects and traditional water supply projects, including conservation and reuse, necessary to meet projected demands.
- ☐ Evaluate the degree to which the 10-Year Water Supply Facilities Work Plan has been implemented for building all public, private and regional water supply facilities within the jurisdiction necessary to meet projected demands.

1a. CITED STATUTORY PROVISIONS (RELEVANT PORTIONS)

163.3167(13), F.S.: Each local government shall address in its comprehensive plan, as enumerated in this chapter, the water supply sources necessary to meet and achieve the existing and projected water use demand for the established planning period, considering the applicable plan developed pursuant to s. 373.0361.

163.3177(3)(a), F.S.: The comprehensive plan shall contain a capital improvements element designed to consider the need for and the location of public facilities in order to encourage the efficient utilization of such facilities and set forth:

1. A component which outlines principles for construction, extension or increase in capacity of public facilities, as well as a component which outlines principles for correcting existing public facility deficiencies, which are necessary to implement the comprehensive plan. The components shall cover at least a 5-year period.
2. Estimated public facility costs, including a delineation of when facilities will be needed, the general location of the facilities, and projected revenue sources to fund the facilities.
3. Standards to ensure the availability of public facilities and the adequacy of those facilities including acceptable levels of service.
4. Standards for the management of debt.
5. A schedule of capital improvements which includes publicly funded projects, and which may include privately funded projects for which the local government has no fiscal responsibility, necessary to ensure that adopted level-of-service standards are achieved and maintained. For capital improvements that will be funded by the developer, financial feasibility shall be demonstrated by being guaranteed in an enforceable development agreement or interlocal agreement pursuant to paragraph (10)(h), or other enforceable agreement. These development agreements and interlocal agreements shall be reflected in the schedule of capital improvements if the capital improvement is necessary to serve development within the 5-year schedule. If the local government uses planned revenue sources that require referenda or other actions to secure the revenue source, the plan must, in the event the referenda are not passed or actions do not secure the planned revenue source, identify other existing revenue sources that will be used to fund the capital projects or otherwise amend the plan to ensure financial feasibility.
6. The schedule must include transportation improvements included in the applicable metropolitan planning organization's transportation improvement program adopted pursuant to s. 339.175(7) to the extent that such improvements are relied upon to ensure concurrency and financial feasibility. The schedule must also be coordinated with the applicable metropolitan planning organization's long-range transportation plan adopted pursuant to s. 339.175(6).

163.3177(5)(a), F.S.: Each local government comprehensive plan must include at least two planning periods, one covering at least the first 5-year period occurring after the plan's adoption and one covering at least a 10-year period.

163.3177(6)(a), F.S.: A future land use plan element designating proposed future general distribution, location, and extent of the uses of land for residential uses, commercial uses, industry, agriculture, recreation, conservation, education, public buildings and grounds, other public facilities, and other categories of the public and private uses of land... . The future land use plan shall be based upon surveys, studies, and data regarding the area, including the amount of land required to accommodate anticipated growth; the projected population of the area; the character of undeveloped land; the availability of water supplies, public facilities, and services;

163.3177(6)(c), F.S.: A general sanitary sewer, solid waste, drainage, potable water, and natural groundwater aquifer recharge element correlated to principles and guidelines for future land use, indicating ways to provide for future potable water, drainage, sanitary sewer, solid waste, and aquifer recharge protection requirements for the area. The element may be a detailed engineering plan including a topographic map depicting areas of prime groundwater recharge. The element shall describe the problems and needs and the general facilities that will be required for solution of the problems and needs. The element shall also include a topographic map depicting any areas adopted by a regional water management district as prime groundwater recharge areas for the Floridan or Biscayne aquifers. These areas shall be given special consideration when the local government is engaged in zoning or considering future land use for said designated areas. For areas served by septic tanks, soil surveys shall be provided, which indicate the suitability of soils for septic tanks. Within 18 months after the governing board approves an updated regional water supply plan, the element must incorporate the alternative water supply project or projects selected by the local government from those identified in the regional water supply plan pursuant to s. 373.0361(2)(a) or proposed by the local government under s. 373.0361(7)(b). If a local government is located within two water management districts, the local government shall adopt its comprehensive plan amendment within 18 months after the later updated regional water supply plan. The element must identify such alternative water supply projects and traditional water supply projects and conservation and reuse necessary to meet the water needs identified in s. 373.0361(2)(a) within the local government's jurisdiction and include a work plan, covering at least a 10-year planning period, for building public, private and regional water supply facilities, including development of alternative water supplies, which are identified in the element as necessary to serve existing and new development. The work plan shall be updated, at a minimum, every 5 years within 18 months after the governing board of a water management district approves an updated regional water supply plan. Amendments to incorporate the work plan do not count toward the limitation on the frequency of adoption of amendments to the comprehensive plan. Local governments, public and private utilities, regional water supply authorities, special districts and water management districts are encouraged to cooperatively plan for the development of multijurisdictional water supply facilities that are sufficient to meet projected demands for established planning periods, including the development of alternative water sources to supplement traditional sources of groundwater and surface water supplies.

163.3177(6)(d), F.S.: A conservation element for the conservation, use and protection of natural resources in the area, including air, water, water recharge areas, wetlands, waterwells, estuarine marshes, soils, beaches, shores, flood plains, rivers, bays, lakes, harbors, forests, fisheries and wildlife, marine habitat, minerals, and other natural and environmental resources. Local governments shall assess their current, as well as projected, water needs and sources for at least a 10-year period, considering the appropriate regional water supply plan approved pursuant to s. 373.0361, or, in the absence of an approved regional water supply plan, the district water management plan approved pursuant to s. 373.036(2). This information shall be submitted to the appropriate agencies... .

163.3177(10)(h), F.S.: It is the intent of the Legislature that public facilities and services needed to support development shall be available concurrent with the impacts of such development in accordance with s. 163.3180. In meeting this intent, public facility and service availability shall be deemed sufficient if the public facilities and services for a development are phased, or the development is phased, so that the public facilities and those related services which are deemed necessary by the local government to operate the facilities necessitated by that development are available concurrent with the impacts of the development. The public facilities and services, unless already available, are to be consistent with the capital improvements element of the local comprehensive plan as required by paragraph (3)(a) or guaranteed in an enforceable development agreement. This shall include development agreements pursuant to this chapter or in an agreement or a development order issued pursuant to chapter 380. Nothing herein shall be construed to require a local government to address services in its capital improvements plan or to limit a local government's ability to address any service in its capital improvements plan that it deems necessary.

163.3191(2)(l), F.S.: The extent to which the local government has been successful in identifying alternative water supply projects and traditional water supply projects, including conservation and reuse, necessary to meet the water needs identified in s. 373.0361(2)(a) within the local government's jurisdiction. The report must evaluate the degree to which the local government has implemented the work plan for building public, private and regional water supply facilities, including development of alternative water supplies, identified in the element as necessary to serve existing and new development.

2. TABLES SHOWING WHICH UTILITIES SERVE WHICH JURISDICTIONS

This portion of Appendix G contains two tables showing local government jurisdictions and the utilities that provide raw or finished water to those local governments. **Table 1** is listed by local governments within the UEC Planning Area. **Table 2** is listed by utilities serving specific local government jurisdictions within the UEC Planning Area.

Table 1. The Utilities and Entities That Serve Local Governments in the UEC Planning Area.

Local Government	County	Local Government Utility	Other Utility Serving Local Government
Martin County (unincorporated)	Martin	Yes	South Martin Regional, Indiantown Company
Jupiter Island	Martin	Local Government Owned	South Martin Regional (owned by Town of Jupiter Island)
Ocean Breeze Park	Martin	No	Martin County Utilities
Sewall's Point	Martin	No	Martin County Utilities
Stuart	Martin	Yes	N/A
Okeechobee County (unincorporated)	Okeechobee	No	N/A
St. Lucie County (unincorporated)	St. Lucie	Yes	Fort Pierce Utility Authority
Fort Pierce	St. Lucie	Yes	N/A
Port St. Lucie	St. Lucie	Yes	St. Lucie West Services District
St. Lucie Village	St. Lucie	No	Fort Pierce Utility Authority

Table 2. Utilities and the Local Governments That Serve the UEC Planning Area.

Utility/Entity Name	County	Local Government Utility	Local Governments Served
City of Stuart Utilities	Martin	Yes	City of Stuart (including Port Sewall)
Indiantown Company, Inc.	Martin	No	Unincorporated Martin County
Martin County Utilities	Martin	Yes	Unincorporated Martin County
Miles Grant	Martin	No	Unincorporated Martin County serves Miles Grant area
Piper's Landing	Martin	No	Unincorporated Martin County serves Piper's Landing Yacht & Country Club area
Plantation	Martin	No	Unincorporated Martin County serves Ocean Club area
Sailfish Point	Martin	No	Unincorporated Martin County serves Sailfish Point Golf Club area
South Martin Regional Utility (No. & So.)	Martin	Yes	Town of Jupiter Island, Hobe Sound and southeast unincorporated Martin County
City of Port St. Lucie Utility Systems Department	St. Lucie	Yes	City of Port St. Lucie (including the majority of the Reserve)
Fort Pierce Utility Authority	St. Lucie	Yes	Fort Pierce and bulk sales to St. Lucie County
Harbour Ridge	St. Lucie	No	Within incorporated City of Port St. Lucie
Meadowood/Panther Woods	St. Lucie	No	Unincorporated St. Lucie County
Reserve	St. Lucie	No	N/A
Spanish Lakes Utilities	St. Lucie	No	Within incorporated City of Port St. Lucie
St. Lucie County Utilities (North Holiday Pines)	St. Lucie	Yes	Unincorporated St. Lucie County
St. Lucie West Services District	St. Lucie	No	St. Lucie West (located w/ City of Port St. Lucie) and bulk water sales to the original section of the Reserve

3. MAPS OF UTILITY AREAS CURRENTLY SERVED (2005) AND TO-BE-SERVED (2025)

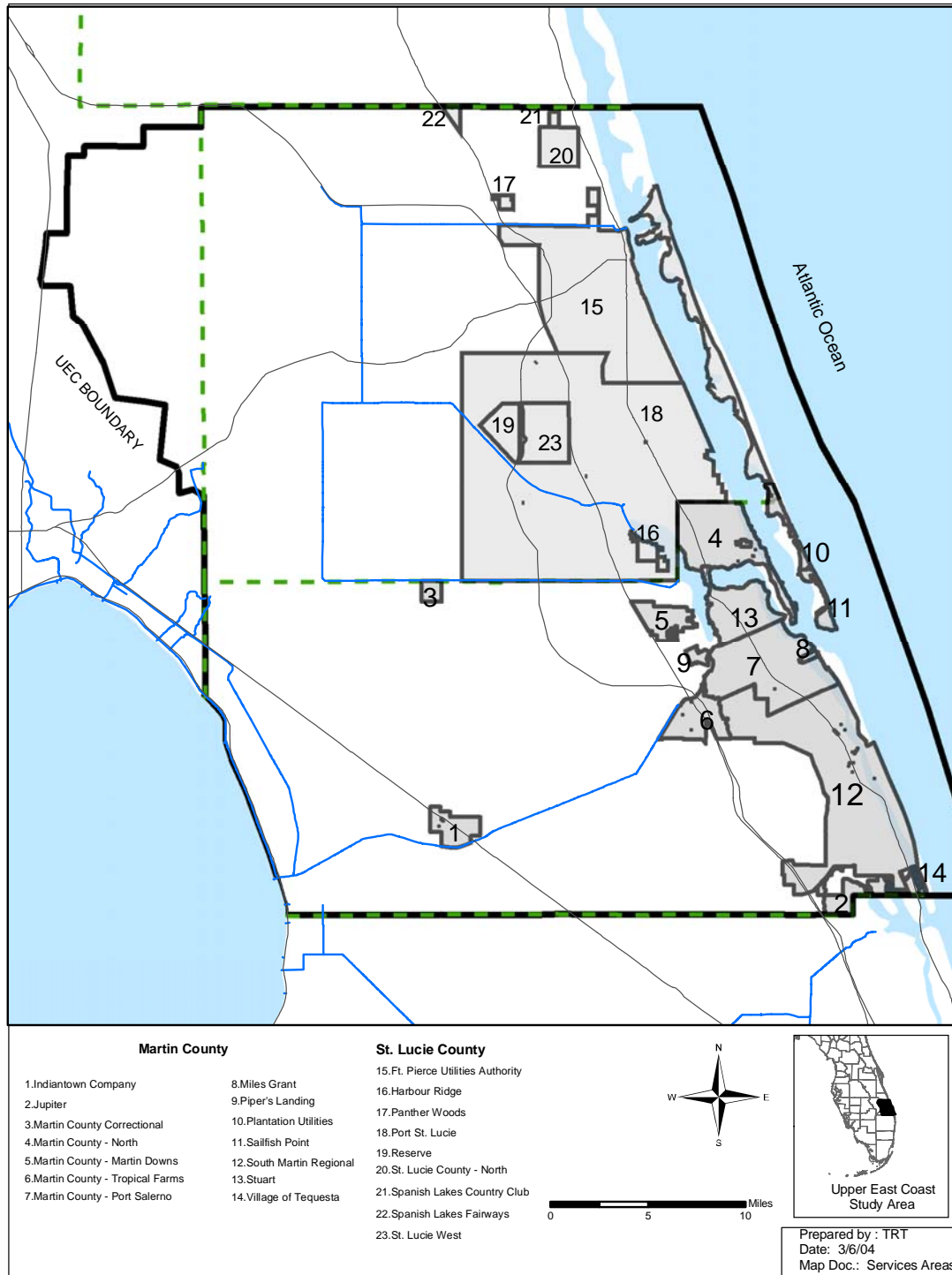


Figure 1. 2005 Utility Areas Served in the Upper East Coast Planning Area.

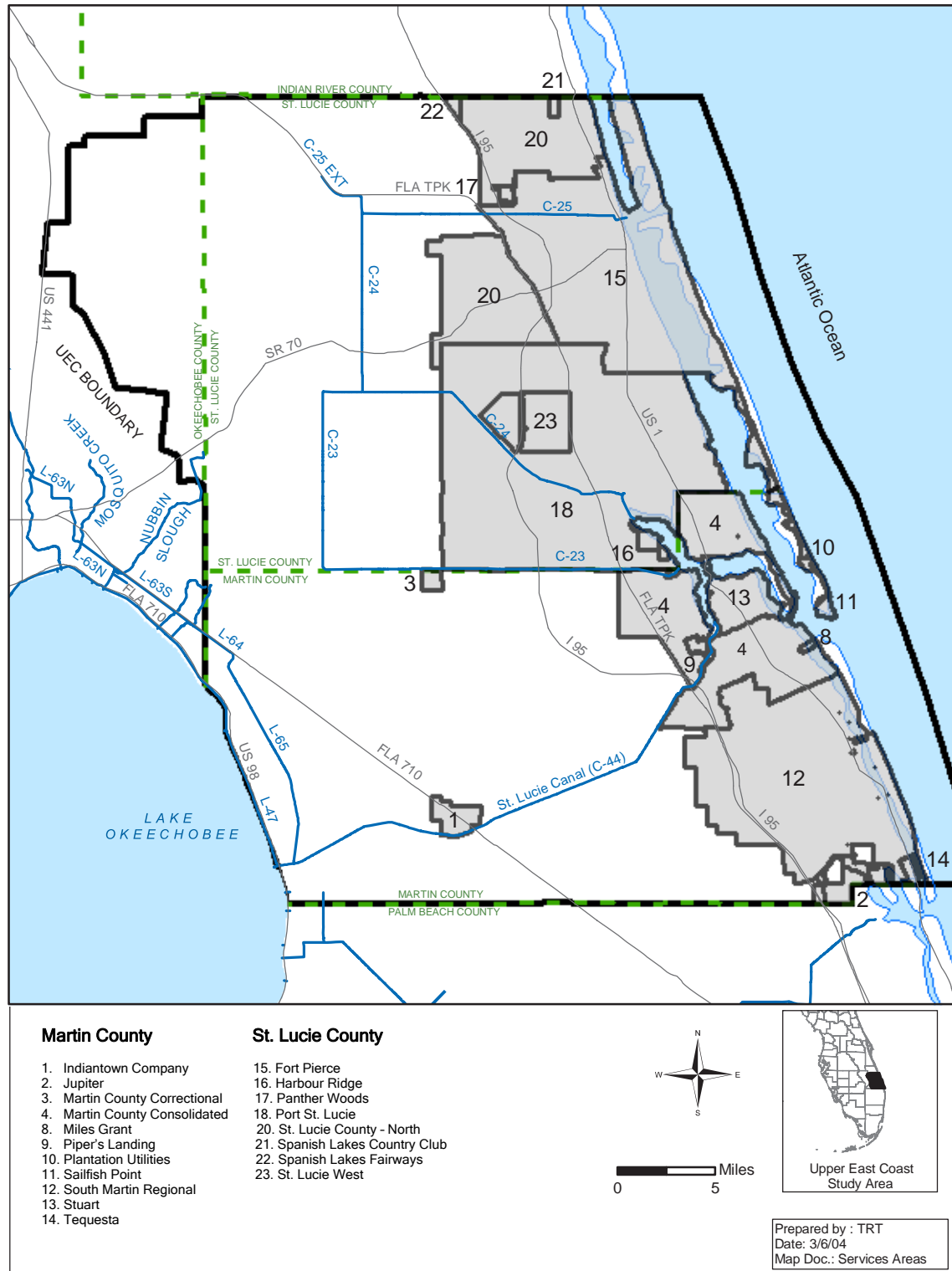


Figure 2. 2025 Utility Areas To-Be-Served in the Upper East Coast Planning Area.

